

CRYSTIC[®] D3846 PA

Isophthalic Resin for Pipe Lining

Introduction

CRYSTIC D3846PA is a thixotropic, pre-accelerated, isophthalic unsaturated polyester resin with a low exotherm.

Application

CRYSTIC D3846PA has been specially designed for the production of liners to be used in the pipe relining industry. Fully cured liners offer high chemical resistance and mechanical properties, together with excellent long term property retention.

Features and benefits

| Features | Benefits |
|-----------------------|---|
| High HDT | Excellent mechanical properties |
| High molecular weight | Excellent resistance to water ingress |
| High elongation | Excellent impact resistance |
| Low exotherm | Prevents distortion of heat sensitive plastic liner |
| Long term experience | Safety in use |

Variant

The non pre-accelerated version of CRYSTIC D3846 PA is available under reference CRYSTIC D 3846.

Chemical resistance

CRYSTIC D3846PA chemical resistance can be checked in the "Safe Chemical Containment" brochure from Scott Bader, or advice can be obtained by contacting our technical department.

Formulation

The following formulation is recommended for hot curing process (80 – 85°C).

| | | | |
|----------------------------|-----------|----------------------------|-----------|
| CRYSTIC D 3846 PA | 100 parts | CRYSTIC D 3846 | 100 parts |
| Perkadox 16 | 0.5-1 | Perkadox 16 | 0.5-1 |
| Trigonox 42S or Trigonox C | 0.5-1 | Trigonox 42S or Trigonox C | 0.5-1 |
| | | Accelerator NL 49 P | 0.3-0.5 |

Perkadox 16, Trigonox42S and C catalysts and Accelerator NL 49 P are from Company AKZO.

Gel time

The ambient temperature, the quantity and the type of catalyst will control the gel time of the resin. Gel time of 100 parts of CRYSTIC D3846PA with 1 part of Perkadox 16 at 80°C is 3.5 to 4.0 minutes.

Additives

Since certain pigments, fillers or extra styrene may affect properties of CRYSTIC D3846PA their effect should be evaluated before addition to the formulation.

Typical properties

| On liquid resin | | |
|---|----------|---------|
| Viscosity at 25°C Rhéomat at 37.35 sec-1 | dPas | 10-14 |
| Specific gravity at 25°C | | 1.10 |
| Acid Index | Mg KOH/g | 14-19 |
| Solid content (1H at 150°C) | % | 57-61 |
| Aspect | | Thixo |
| Stability in the dark at 20°C | Month | 6 |
| Reactivity SPI at 80°C for 100g of resin + 1g Perkadox 16 | Minutes | 3.5-4.0 |

| On fully cured* resin | | |
|--|------|-------|
| Barcol hardness (GYZJ 934 – 1) | dPas | 10-14 |
| Heat deflection temperature under load (1.8 MPa) | °C | 75 |
| Water Absorption (24h à 23°C) | mg | 16 |
| Specific gravity at 20°C | | 1.16 |
| Elongation at break | % | 3.8 |
| Tensile strength | MPa | 75 |
| Tensile modulus | MPa | 3500 |
| Flexural Strength | MPa | 86 |
| Flexurus Modulus | MPa | 3600 |

Test according to BS 2782 :1980

1MPa = 1MN/m² = 1N/mm² = 10,2 kgf/cm²

* cured 24h at 20°C then 3h at 80°C except for the HDT where the schedule was 24h at 20°C then 5h at 80°C then 3h at 100°C.

| Mechanical properties of impregnated felt, thickness of 3mm | | Unfilled resin | Filled resin 25% ON310 |
|--|-----|----------------|------------------------|
| Tensile strength | MPa | 31 | 29 |
| Tensile modulus | MPa | 3750 | 4700 |
| Flexural strength | MPa | 64 | 54 |
| Flexural modulus | MPa | 2850 | 3700 |

Packaging

CRYSTIC D3846PA is supplied in 225 kg or 1100 kg containers. Bulk supplies can be delivered by road tanker.

Storage

CRYSTIC D3846PA should be stored under cover in the dark in the container in which it is supplied. Storage temperatures should not exceed 20°C.

Health and security

Please see Safety data sheet.

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